

Carter Williamson

06/20/01 11:50 AM

To: Kevin Simmons/R4/USEPA/US@EPA

cc:

Subject: Site Visit to Carolina Vermiculite, Palmetto Vermiculite, & W.R. Grace & Co., Enoree, SC

Kevin

Here's a report that John generated as a result of the mine inspections. You may find it useful for your report or general info.

Take care,

Carter

----- Forwarded by Carter Williamson/R4/USEPA/US on 06/20/2001 11:51 AM -----

John Hund

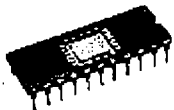
06/20/2001 10:45 AM

To: Susan Zapata/RTP/USEPA/US@EPA

cc: Phillip King/R5/USEPA/US@EPA, Robert

Vick/ENF/R8/USEPA/US@EPA, Dan Thornton/DC/USEPA/US@EPA,
(bcc: Carter Williamson/R4/USEPA/US)

Subject: Site Visit to Carolina Vermiculite, Palmetto Vermiculite, & W.R. Grace & Co., Enoree, SC



Susan:

Site visit/inspection of Carolina Vermiculite, Woodruff, SC; Palmetto Vermiculite, Woodruff, SC; and W.R. Grace & Co. Vermiculite, Enoree, SC, was conducted on 6/6/01. EPA Region 4 staff participating in the inspection were Carter Williamson, On-Scene Coordinator (OSC), Emergency Response Branch, Waste Division, Atlanta, GA; Kevin Simmons and Art Master, Science and Ecosystem Division (SESD), Athens, GA; and John Hund, Toxic Substances Section, Air, Pesticides and Toxic Management Division, Atlanta, GA. Also participating in the inspection was Dan Thorton, Office of Solid Waste and Emergency Response (OSWER), EPA Headquarters, Washington, D.C..

The purpose of the inspections were to visit the various processing sites and mines and take samples of the of the vermiculite ore and product that was processed at the plants. The following in a brief summary and findings of the various plants that were inspected:

CAROLINA VERMICULITE, WOODRUFF, SC

Carolina Vermiculite is owned by Virginia Vermiculite and operates two (2), twelve (12) hour shifts, four (4) days a week and employs approximately twenty (20) people. Maintenance activities are performed on Friday. All of their ore is locally mined. They produce approximately seven (7) tons of concentrated vermiculite product/hour. These production rates are approximate rates. Plants consider this information proprietary.

Material consisting of sand/clay/dirt/vermiculite, is washed from the stock pile into a drop hopper by using high pressure water hoses. The material is fed to a rotary drum with perforated holes approximately thirty (30) feet in length by three (3) ft in diameter and larger rock materials, etc., are separated from the ore. The material is screened. This wetted material is conveyed to a series of two (2) flotation tables and the vermiculite ore is separated from the clay/dirt. Next the vermiculite ore is dried in a rotary dryer. This process is referred to as milling which concentrates the vermiculite ore to 90 per cent.

Carolina Vermiculite does not have an exfoliation/expansion plant and all of their product is sold to other companies. A wet scrubber is used to control the dust from the concentrate dryer and bagging operation. Stack tests were conducted on the dryer in 1998 and were in compliance with South Carolina Department of Health and Environmental Control (SDHEC) regulations. Actual emissions were 0.3512 lbs/hr vs. allowable emission rate of 0.93 lbs/hr. They have an operating permit from the SCDHEC.



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Samples of the stockpiled ore, processed ore and tailings (which feed into the reclaim pond) were collected by SEDS for analysis. We also traveled to one of the nearby mine sites and took samples of various deposits. These samples were split with the company.

PALMETTO VERMICULITE

Palmetto Vermiculite is located about a mile from Carolina Vermiculite and began operation in 1983. The owner of Palmetto Vermiculite (Ray Brown) was a former partner/owner of Carolina Vermiculite selling his interest to Doug Hanson, owner of Virginia Vermiculite and Carolina Vermiculite. Palmetto Vermiculite does not mine any ore, they purchase all of their concentrated ore from outside sources - Carolina Vermiculite, Virginia Vermiculite, and South Africa. This plant is strictly an expanding plant. The expansion furnace is controlled by a baghouse and is permitted by SCDHEC. We were told that they never received ore from the W.R. Grace Libby mine. They started operation in 1983 and produced 13,000 tons of exfoliated/expanded vermiculite last year. Sales of vermiculite are down because of the concern about asbestos. Their product is used for horticultural uses, lightweight cements, plaster, etc. Samples of the raw materials and finished produce were collected for analysis. These samples were split with the company.

W.R. GRACE, ENOREE, SC

The W.R. Grace, Enoree, SC, facility is the largest vermiculite processor in the U.S. Since Scott Company closed their exfoliation/expansion plant in Maryville, OH, the W.R. Grace expanding plant in Enoree is the largest in the world. They produce over 96,000 tons of concentrate annually and expand 30,000 tons of concentrate annually. The Enoree plant is located on 400 acres, a former mine site. Mines are located from one (1) mile to thirty (30) miles away. The SC vermiculite deposits in this area cover approximately a 600 square mile (three (3) county) area. They use a wet slurry process to separate the vermiculite ore from the rock/dirt similar to that used by Carolina Vermiculite. A third of their product is expanded on site and the remainder of the concentrated vermiculite is shipped to W.R. Grace plants in Canada to be expanded. Some of the concentrated product is shipped to Scott Company in Travelers Rest, SC, and Maryville, OH. The Scott facility in Travelers Rest also has an expansion plant which produces horticultural products.

The milling/concentrate plant operates twenty-four (24) hour shifts, three (3) days/week. The concentrate dryer is controlled by a scrubber and two (2) baghouses control dust emissions from screw conveyors, transfer points, bagging operations, etc. The scrubber and baghouses are permitted by SCDHEC.

The expansion plant operates twenty-four (24) hour shifts, five (5) days/week. The expansion plant has five (5) expansion furnaces which are controlled by baghouses. The baghouses are permitted by SCDHEC.

Grace has developed and patented a chemically exfoliated liquid form of vermiculite which is used as a fire retardant for fabrics called Microlite which is made at the Enoree facility.

We were told that some years ago that Grace did find a vein of tremolite ore at the Madden site mine. Samples were sent off for analysis and confirmed that it was tremolite asbestos. Grace capped and covered this area. Grace also found a vein of tremolite at the Blakely site mine. The asbestos content was less than 1%. This mine has been closed.

SCOTT SIERRA, TRAVELERS REST, SC

We did not visit this plant since SSCD had collected samples in a visit to this facility in 5/01. Scott Sierra is located at the old W.R. Grace site. Scott produces horticultural products at this location. Vermiculite concentrate is expanded in two (2) expansion furnaces (1.5 MM/BTU oil fired furnace and 2.2 MM/BTU gas fired furnace) and each furnace is controlled by a cyclone collector followed by baghouse. This facility has an operating permit from SCDHEC and is classified as a conditional major/synthetic minor source.